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Caltrans Division of Research, Innovation and System Information

Research Results

Online Transit Scheduling Using Google Transit

Small transit agencies can deliver accurate, cost-effective, public schedule data to Internet based trip planners using Google Transit

Modal

MARCH 2013

Project Title:
Online Transit Trip Planner for Small Agencies Using Google Transit

Task Number: 2028
Completion Date: October 31, 2011

This project helped small and regional transit agencies in California move dynamic data—schedules—into Google Transit and built a comprehensive and realistic playbook of the time, process, staff requirements, best performance measures, and the costs to work with General Transit Feed Specification (GTFS) standards.

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WHAT WAS THE NEED?

The Google Transit Trip Planner, a free e-tool launched in 2005 to provide customers with online trip planning capabilities, is successfully used by transit agencies. While online trip planner tools have been shown to benefit transit riders, streamline agency operations, and enhance customer satisfaction, small and mid-sized transit agencies have been hesitant to sign on.

Transitioning to Google Transit requires dedicated staff time to organize schedule data and convert it to the required General Transit Feed Specification (GTFS) standards—tasks perceived by some smaller agencies as prohibitively time consuming, challenging to current staff capabilities, and costly.

WHAT WAS OUR GOAL?

The project's objective was to evaluate the challenges that small transit agencies encounter when choosing to use the Google Transit Trip Planner Tool to provide their customers with online transit trip planner access. The Partners for Advanced Transportation Technologies (PATH) at the University of California, Berkeley, in conjunction with Caltrans and the Federal Highway Administration (FHWA), developed a pilot program to help a select number of small transit agencies in California move their service data into Google Transit.

The project enabled San Luis Obispo–area travelers to use Google Transit to plan trips with connections between regional and city bus lines.

Photo Courtesy of Altamont Commuter Express

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Caltrans improves mobility across California by performing applied research, developing innovations, and implementing solutions.

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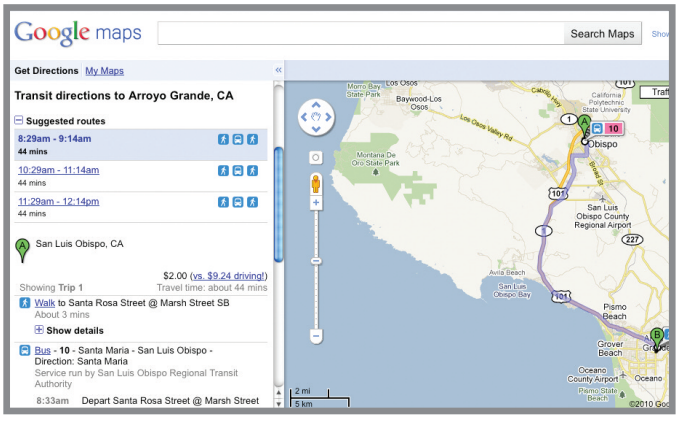
WHAT DID WE DO?

The selected agencies were provided with resources and tools to help them organize their schedule data, convert it to the required GTFS format, and make it available to Google Transit. The effort was monitored to determine the potential benefits and pitfalls to be expected when small agencies choose to join the Google Transit Trip Planner Tool community.

Most of the participating agencies were able to launch their GTFS data onto Google Transit in less than five months. Consultant costs for the development of the data ranged from $950 for the agencies with the simplest networks to $9,400 for the agency with the most complex network. While some agency staff still needed more time to spend on the data conversion effort, most agencies indicated that this effort involved less than 25% of their total staff time over the few months that the GTFS development took place.

Data hosting and maintenance also require relatively limited resources. Because the GTFS data for small agencies often only require a few hundred kilobytes of space on a computer server, this data can easily be hosted on an existing computer server. Data maintenance service contracts can also be signed with consulting firms specializing in such work. Based on data collected between 2009 and 2011, the annual costs of such contracts would vary between $200 and $2,800, depending on the complexity of the GTFS data to maintain, the support services included in the contract, and the firm offering the services. While agency staff often expressed fear regarding their ability to develop or maintain GTFS data, experiences from this project indicate that many of the fears can be alleviated through proper documentation and simple hands-on training.



Google trip-planner results from Arroyo Grande to central San Luis Obispo now include a segment from the regional transit district.

WHAT WAS THE OUTCOME?

This research provides transit agencies with valuable insight into the process of joiningGoogle Transit. Other elements include:

- Review of the needs associated with GTFS data conversion, data maintenance, hosting, security, performance evaluation, and marketing and outreach
- Description of free and subscription-based GTFS development tools available to transit agencies
- Description of a typical GTFS data development process
- Description of various data hosting and maintenance models available to transit agencies
- Identification of training resources available for free
- Technical resources that can be used to assist with the development of GTFS data

WHAT IS THE BENEFIT?

The pilot deployments demonstrated that the tasks necessary to join the Google Transit Trip Planner require only a relatively short time and minimum staff time commitments when using development tools that are currently available for free. Where the choice exists, the preference should be to develop service data using the GTFS data format. This data format not only allows transit agencies to upload their data onto Google Transit, but also onto multiple traveler information applications developed by independent entities and made available to the traveling public either for free or for a nominal fee.

LEARN MORE

To view the report:
www.dot.ca.gov/research/researchreports/reports/2011/2011-09_task-2028_modal.pdf

The project enabled the ACE Train to deliver its data to Google Transit.